

Claims

1. An actuator unit, having a piezoelectric actuator (1) disposed in a hollow body (4), in which the hollow body (4) is embodied elastically and prestressed the actuator (1), and the hollow body (4) is provided with recesses and has a first seam (31), extending parallel to a longitudinal axis (35), characterized in that at least on a first end (17) of the hollow body (4), a second seam (33) is provided, located diametrically opposite the first seam (31).
2. The actuator unit of claim 1, characterized in that a second seam (33), located diametrically opposite the first seam (31), is provided on a second end (15) of the hollow body (4).
3. The actuator unit of claim 2, characterized in that the second seam (33) extends from the first end (17) to the second end (15) of the hollow body (4).
4. An actuator unit, having a piezoelectric actuator (1) disposed in a hollow body (4), in which the hollow body (4) is embodied elastically and prestressed the actuator (1), and the hollow body (4) is provided with recesses and has a first seam (31), extending parallel to a longitudinal axis (35), characterized in that at least on a first end (17) of the hollow body (4), a first recess (51) is provided, located diametrically opposite the first seam (31).

5. The actuator unit of claim 4, characterized in that a further recess (51), located diametrically opposite the first seam (31), is provided on a second end (15) of the hollow body (4).
6. The actuator unit of claim 4 or 5, characterized in that one recess (53) each is provided on the first end (17) and/or on the second end (15) of the hollow body (4), in the region of the first seam (31).
7. The actuator unit of one of the foregoing claims, characterized in that the hollow body (4) is joined on its first end (17) to an upper cover plate (6) or to an adjusting disk (93).
8. The actuator unit of one of the foregoing claims, characterized in that the hollow body (4) is radially fixed on its first end (17).
9. The actuator unit of claim 8, characterized in that the hollow body (4) is fixed radially on its first end (17) in the upper cover plate (6) or in the adjusting disk (93), in particular by means of an annular groove (39) or a shoulder (37).
10. The actuator unit of claim 8, characterized in that the hollow body (4) is secured by its first end (17) to the upper cover plate (6) by welding (41).

11. The actuator unit of one of claims 4 through 10, characterized in that the contacting of a piezoelectric actuator (1) located in the hollow body (4) is effected via the upper cover plate (6a, 6b).
12. The actuator unit of one of claims 4 through 11, characterized in that the upper cover plate (6) is embodied in two parts; and that a parting seam is present between the two parts (6 a, 6b) of the upper cover plate (6).
13. The actuator unit of claim 12, characterized in that the first seam (31) and the second seam (33) open into the parting seam of the upper cover plate (6a, 6b).
14. The actuator unit of one of claims 11 through 13, characterized in that the upper cover plate (6, 6a, 6b) is electrically insulated by means of an insulator (43), in particular a ceramic insulator.
15. The actuator unit of one of claims 11 through 14, characterized in that the upper cover plate (6, 6a, 6b) is held together by a securing clamp (45) or a securing cap.
16. The actuator unit of one of claims 11 through 15, characterized in that between the hollow body (4) and the piezoelectric actuator (1), a flexible binding means (47), in particular plastic-bonded metal or a soft solder, is present.
17. The actuator unit of one of the foregoing claims, characterized in that the hollow body (4) is radially fixed on its second end (15).

18. The actuator unit of one of the foregoing claims, characterized in that the hollow body (4) is joined on its second end (15) to a lower cover plate (5) or to a coupler housing (86).

19. The actuator unit of claim 18, characterized in that the hollow body (4) is fixed radially on its second end (15) in the lower cover plate (5) or in the coupler housing (86), in particular by means of an annular groove (39) or a shoulder (91).

20. The actuator unit of claim 18, characterized in that the hollow body (4) is secured by its second end (15) to the lower cover plate (5) by welding (41).

21. The actuator unit of one of the foregoing claims, characterized in that the recesses (7) are embodied in bonelike shape and extend transversely to a longitudinal axis (35) of the hollow body (4).

22. The actuator unit of one of the foregoing claims, characterized in that a plurality of recesses (7) are located one behind the other in one plane (E_2); and that the plane (E_2) forms a right angle with the longitudinal axis (35) of the hollow body (4).

23. The actuator unit of claim 21, characterized in that there is an even number of recesses (7) in one plane (E_2).

24. The actuator unit of one of claims 22 or 23, characterized in that a plurality of planes (E_i) are provided with recesses (7); and that the planes (E_i) extend parallel to one another.

25. The actuator unit of one of the foregoing claims, characterized in that the recesses (7) of two adjacent planes (E_1) are offset (23) from one another.

26. The actuator unit of claim 25, characterized in that the offset (23) of the recesses (7) of two adjacent planes is equal to half the repeat (21) of the recesses (7) in one plane (E_1).

27. The actuator unit of one of the foregoing claims, characterized in that the hollow body (4) has a circular cross section.

28. The actuator unit of one of the foregoing claims, characterized in that the cross section of the hollow body (4) has the form of a regular polygon.

29. The actuator unit of one of the foregoing claims, characterized in that the piezoelectric actuator (1) is disposed in the hollow body (4); and that the piezoelectric actuator (1) is stressed for pressure by the prestressed hollow body (4).

30. The actuator unit of one of the foregoing claims, characterized in that the piezoelectric actuator (1) is disposed outside the hollow body (4); and that the piezoelectric actuator (1) is stressed for pressure by the prestressed hollow body (4).